Basic Bridging Compliance

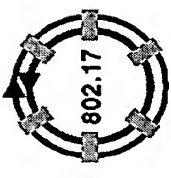## July 2002

802.17

IEEE

Objective

Summarize functional delta between basic bridging compliance and enhanced bridging compliance proposals

Summarize technical 802.17 MAC impact resulting from basic bridging compliance and enhanced bridging compliance proposals

Hi-lite basic bridging compliance solution impact to 802.17 MAC

Terminology

Remote Address

- An address that is not found on the ring (i.e., an address that is not found within the RPR station topology image)

  - A global address

Local Address

- An address that can be found on the ring (i.e., an address that is found within the RPR station topology image)

  - A local address of the ring

Flood

- A transmission mechanism that ensures all RPR stations see a transmitted packet once, without duplication

Basic/Enhanced (802.1D/Q) Bridge Functionality

	Basic Transparent Bridging	Enhanced Transparent Bridging
802.1D/Q compliance	√	√
Local ring traffic spatial reuse	√	√
Transparent bridging traffic spatial reuse	×	√
Other traffic spatial reuse (e.g., multicast handling)	×	√

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Basic/Enhanced (802.1D/Q) Bridge Impact on MAC

Basic Bridging Proposal Minimal Requirements	Enhanced Bridging Proposal Minimal Requirements

1. Flooding indication support in frame structure
 	
2. MAC supports flooding technique(s)
	1. Supports basic bridging minimal requirements
	
	2. Spatial Reuse Control Sublayer (SRCS) functionality which include SRCS mapping table
	
	3. Need to address TCN (Topology Control Notification) message handling
	  – Introduction of new RPR TCN control message, or
	  – MAC needs to be aware of MAC client BPDUs
	
	4. SRCS interactions with MAC clients
	
	5. Station identifiers in frame format
	  – RPR required to support station identifier distribution and uniqueness protocol
	
	6. MAC stripping rules include station identifier recognition

Basic Bridging Requirements on 802.17 MAC

1. RPR bridges do not operate in promiscuous mode

2. Flooding indication supported by 802.17 frame

3. MAC flood all packets provided by 802.1D/Q bridge relay client

4. MAC will flood all packets with network destination addresses

5. MAC will replicate/copy packets when flooding indication is set in received packet

Bridges not Operating in Promiscuous Mode
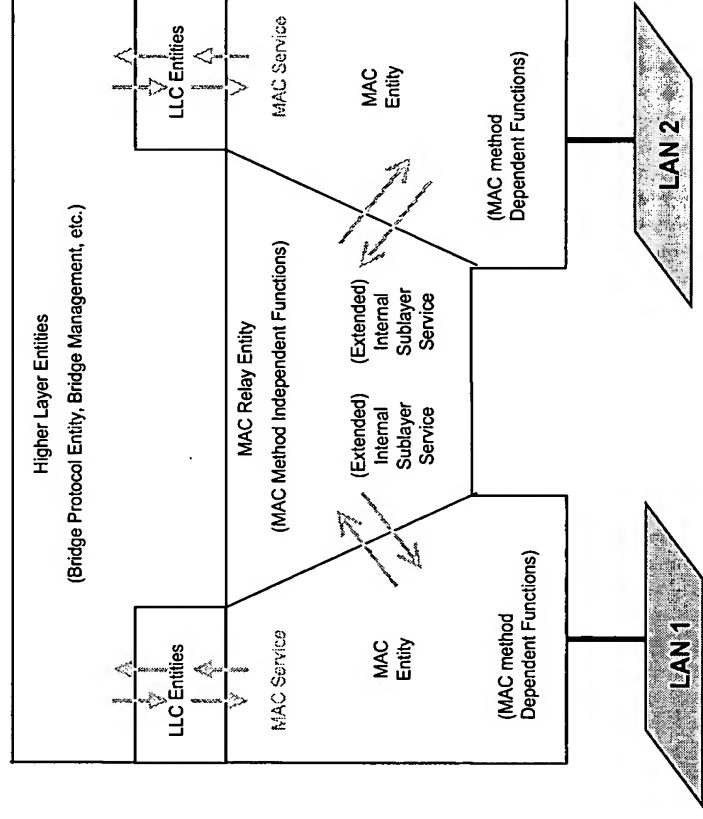
No impact to MAC

– No impact to MAC reception rules

– No impact on MAC transmission rules

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MAC Supporting Bridge Client Floods All Packets

ISS/E-ISS upon reception of REQUEST primitive will set flooding indication in frame structure

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Higher Layer Entities
(Bridge Protocol Entity, Bridge Management, etc.)

LLC Entities

MAC Service

MAC
Entity

(MAC method
Dependent Functions)

LAN 1

MAC Relay Entity

(MAC Method Independent Functions)

(Extended)
Internal
Sublayer
Service

(Extended)
Internal
Sublayer
Service

LLC Entities

MAC Service

MAC
Entity

(MAC method
Dependent Functions)

LAN 2

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MAC Floods All Packets with Remote Destination Address

If destination address, found in client REQUEST primitive, is a remote address

- Set flooding indication in frame structure
- Network address identified if not found in topology image
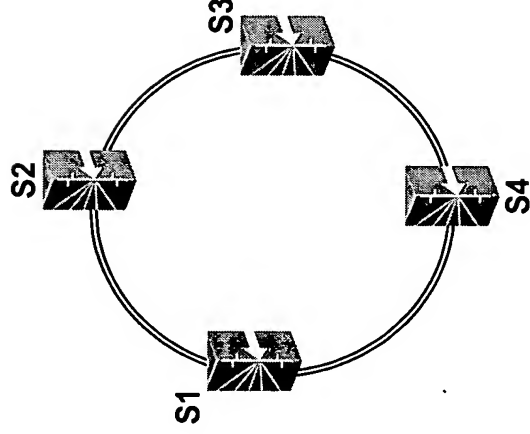
S1 Station Topology Image

Dest Station	Primary	CCW	CW
		TTL	TTL
S2	CW	3	1
S3	CW/CCW	2	2
S4	CCW	1	3

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MAC Replicates Packets When Flooding Indication in Frame Structure

Frame Replication

- Identical to MAC support of broadcast or multicast packet

- The frame is "Dropped" (I.e., passed to appropriate MAC client)

- The frame is forwarded downstream if MAC stripping rules don't strip (e.g., TTL permits, not destination address, etc.)

Media Access Rate Policing Entity

Link BW Monitor entity

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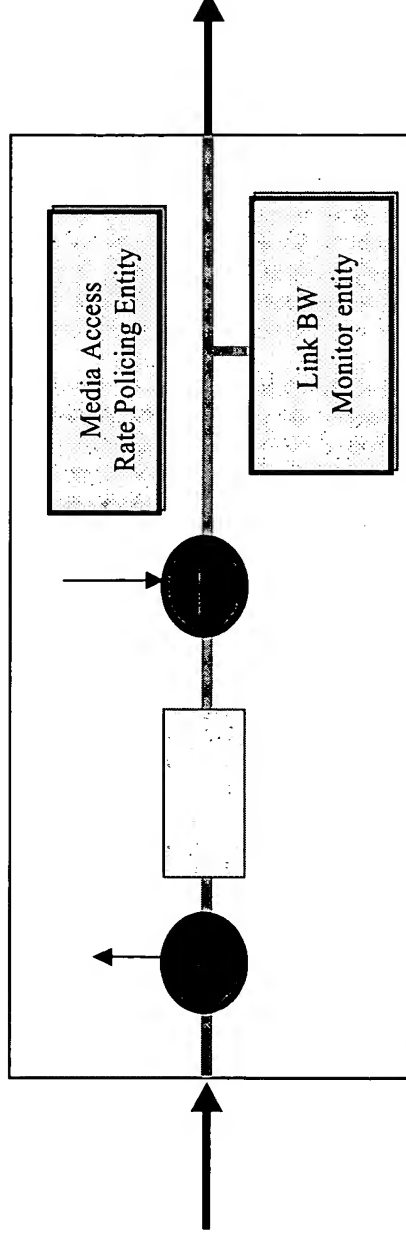
Recommendation/Conclusion

1. Basic bridging compliance proposal minimizes complexity to 802.17 MAC and risk to 802.17 standard

2. Basic bridging compliance proposal can satisfy 802.17 PAR